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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* FRANK Y. XU, MICHAEL P.C. WATTS,  
and NICHOLAS A. STACEY

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Appeal 2009-011769  
Application 10/784,911  
Technology Center 1700

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Before CHUNG K. PAK, LINDA M. GAUDETTE, and MARK NAGUMO,  
*Administrative Patent Judges.*

PAK, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1 through 19, all of the claims pending in the above-identified application.<sup>1</sup> We have jurisdiction under 35 U.S.C. § 6.

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<sup>1</sup> See the Appeal Brief ("App. Br.") filed December 7, 2007, the Examiner's Answer ("Ans.") filed February 6, 2009, and the Reply Brief ("Reply Br.") filed March 5, 2009.

## STATEMENT OF THE CASE

The subject matter on appeal is directed to “materials for imprint lithography” (Spec. 1, para. 0001). These materials, otherwise known as imprint compositions, are said to provide an improved release characteristic relative to a known material for imprint lithography made of “a low viscosity, polymerizable (typically UV curable) fluid composition (typically in the form of droplets)” and are said to have desired fast filling properties with little or no evaporation of the droplets and without any additional heating (Spec. 1-3, paras. 0003-0005). For the materials to be useful for imprint lithography, they must maintain low overall viscosities, e.g., less than 5 centipoise, even if some high viscosity component is added for the purpose of improving the strength of the resulting polymerized material (Spec. 14, para. 0030). The viscosities of the materials for imprint lithography are measured at 25 °C (Spec. 3, para. 0005 and Spec. 12, para. 0027). Details of the appealed subject matter are recited in illustrative claim 1 reproduced from the Claims Appendix to the Appeal Brief as shown below:

1. An imprinting material for use in imprint lithography comprising: a composition having a viscosity associated therewith and including a surfactant, a polymerizable component, and an initiator responsive to a stimuli to vary said viscosity in response thereto, with said composition, in a liquid state, having said viscosity being lower than about 100 centipoises, a vapor pressure of less than about 20 Torr, and in a solid cured state a tensile modulus of greater than about 100 MPa, a break stress of greater than about 3 MPa and an elongation at break of greater than about 2%.

As evidence of unpatentability of the claimed subject matter, the Examiner relies upon the following prior art references (Ans. 3):

Wojnarowicz	5,149,592	Sep. 22, 1992
Chaouk '609	6,015,609	Jan. 18, 2000
Chaouk '530	6,060,530	May 9, 2000
Chaouk '030	6,160,030	Dec. 12, 2000
Chaouk '367	6,225,367 B1	May 1, 2001

Appellants seek review of the following grounds of rejection<sup>2</sup> set forth by the Examiner in the Answer:

1) Claims 1 through 5, 7, and 9 through 19 under 35 U.S.C. § 102(b) as anticipated by, or in the alternative under 35 U.S.C. § 103(a) as unpatentable over, the disclosure of Wojnarowicz; and

2) Claims 1 through 19 under 35 U.S.C. § 102(b) as anticipated by, or in the alternative under 35 U.S.C. § 103(a) as unpatentable over, the disclosure of Chaouk '609, '530, '030, or '367 (App. Br. 4).

#### FACTUAL FINDINGS, PRINCIPLES OF LAW, ISSUES, ANALYSES, AND CONCLUSIONS

In rejecting the claims on appeal based on either Wojnarowicz or Chaouk, the Examiner takes the position that:

While the prior art may not expressly teach the disclosed properties of the claimed curable (liquid state) composition,

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<sup>2</sup> The Examiner has withdrawn the rejection based on the disclosure of Pacht set forth in the final Office action dated September 20, 2007 (Ans. 5).

such as overall viscosity [and vapor pressure], or the properties of a cured final product (solid state) prepared from the claimed uncured composition, it is reasonable [to conclude] that the composition of the prior art would possess the presently claimed properties since the composition is essentially the same as the claimed composition . . . (Ans. 3 and 4).

Thus, the first critical question is: Has the Examiner shown a sound basis for believing that the prior art composition taught by either Wojnarowicz or Cahaouk is identical or substantially identical to the claimed imprint material for use in imprint lithography within the meaning of 35 U.S.C. § 102(b) or § 103(a)? On this record, we answer this question in the negative.

As stated by a predecessor to our reviewing court in *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977):

[w]here . . . the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. Whether the rejection is based on 'inherency' under 35 U.S.C. § 102, on 'prima facie obviousness' under 35 U.S.C. § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products. [(Footnote and citations omitted.)]

The Examiner has the initial burden of presenting a sound basis to conclude that the products of claim 1 on appeal and the prior art are the same or substantially the same. *See, e.g., In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990) ("[W]hen the PTO shows sound basis for believing that the products

of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.”)

As indicated *supra*, the preamble limitation “[a]n imprint material for use in imprint lithography” recited in claim 1, when read in light of page 14, paragraph 0030, of the Specification, necessarily or intrinsically requires the claimed imprint material’s overall viscosity be sufficiently low, e.g., less than 5 centipoises, such that it is useful for imprint lithography, although some high viscosity components may be present in the material. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005)(*en banc*), quoting *Vitronics Corp. v. Conception, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)(“[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’”); *Corning Glass Works v. Sumitomo Elec. U.S., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989)(“The effect preamble language should be given can be resolved only on review of the entirety of the patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.”). The Specification, at page 14, paragraph 0030, clearly states that:

*The requirement of low viscosity may restrict the choice of components used to fabricate the imprinting material. To build up the strength of the polymerized material based on non-polar monomers, one may compromise and add higher viscosity components. For example, identified is isobornyl acrylate as the building block with silicon containing acrylate monomer components being added to provide silicon for etch selectivity. Typically, the high viscosity components are added judiciously to maintain an overall viscosity of imprinting material 36a to be less than 5 cps. [(Emphasis added.)]*

Thus, notwithstanding the Examiner's arguments to the contrary at pages 6, 7, and 11 of the Answer, the transitional term "comprising" in claim 1 does not permit the presence of a significant amount of a high viscosity component that would have rendered the claimed imprint material unsuitable for imprint lithography.

Having interpreted the claims on appeal in the above manner, we find the Examiner has not provided a sound basis for concluding that the claimed and prior art products are identical or substantially identical. In this regard, the Examiner has not demonstrated that the compositions taught by Wojnarowicz and Chaouk have very low overall viscosities such that they would be useful as imprint materials for imprint lithography. As correctly asserted by Appellants at pages 18, 19, 16 and 27 of the Appeal Brief, the flexible glossy coating and porous polymer formulations taught by Wojnarowicz and Chaouk, respectively, require the presence of a significant amount of a polymerizable component having a high viscosity. Moreover, as Appellants indicate at page 27 of the Appeal Brief, the Examiner has not shown that the porous polymer formulation containing a significant amount of water taught by Chaouk would reasonably be expected to have the claimed properties or would be useful or suitable for imprint materials for imprint lithography. Thus, on this record, we concur with Appellants that the Examiner has not provided a sound basis to conclude that the product taught by either Wojnarowicz or Chaouk is identical or substantially identical to the claimed imprint materials for use in imprint lithography within the meaning of 35 U.S.C. § 102(b) or § 103(a).

The Examiner alternatively contends that "it would still have been obvious to one of ordinary skill in the art . . . to arrive at the same inventive

composition because the disclosure of the inventive subject matter appears within the generic disclosure of the prior art.” (Ans. 9 and 13).

Thus, the second critical question is: Has the Examiner demonstrated that one of ordinary skill in the art would have been led to modify the composition taught by Wojnarowicz or Chaouk to arrive at the claimed imprint material for use in imprint lithography within the meaning of 35 U.S.C. § 103(a)? On this record, we answer this question in the negative.

As is apparent from the record, the Examiner has not explained how or why the composition taught by Wojnarowicz or Chaouk could have been modified to arrive at the claimed imprint material for use in imprint lithography (Ans. 5-14). In particular, the Examiner has not shown why one of ordinary skill in the art would have been led to exclude a significant amount of a polymerizable component having a high viscosity and/or a significant amount of water and their attendant functions from the composition taught by Wojnarowicz or Chaouk to arrive at the claimed imprint material for use in imprint lithography (*id.*). Thus, on this record, the Examiner has not advanced an adequate explanation or factual basis for a prima facie case of obviousness of the claimed subject matter within the meaning of 35 U.S.C. § 103(a).

#### ORDER

Upon consideration of the record, it is

ORDERED that the decision of the Examiner to reject claims 1 through 5, 7, and 9 through 19 under 35 U.S.C. § 102(b) as anticipated by, or in the alternative under 35 U.S.C. § 103(a) as unpatentable over, the disclosure of Wojnarowicz is REVERSED;



FURTHER ORDERED that the decision of the Examiner to reject claims 1 through 19 under 35 U.S.C. § 102(b) as anticipated by, or in the alternative under 35 U.S.C. § 103(a) as unpatentable over, the disclosures of Chaouk '609, '530, '030, or '367 is REVERSED; and

FURTHER ORDERED that no time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

REVERSED

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